PROCESSING DATE—20NOV70

UNCLASSIFIED

1/2   020
TITLE—USE OF TRANQUILIZERS IN DERMATOLOGICAL PRACTICE —U—

AUTHOR-(03)-ASHMARIN, YU.YA., SHATOVA, L.I., RYBAK, E.L.

CCUNTRY CF INFC—USSR

SOURCE—VESTNIK DERMATOLOGII I VENEROLOGII, 1970, NR 6, PP 6-12

DATE PUBLISHED———70

SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—DERMATOLOGY, TRANQUILIZER, NEUROSIS

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—3005/1381

STEP NO—UR/0206/70/000/006/0006/0012

ACCESSION NO—AP0133333   UNCLASSIFIED

PROCESSING DATE--20NOV70

UNCLASSIFIED

2/2   020
CIRC ACCESSION NO--AP0133333
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   IN THE COMPLEX THERAPY OF PATIENTS
WITH DERMATIC DISEASES THE AUTHORS USED CERTAIN CURRENT PSYCHOTROPIC
DRUGS (TRANQUILIZERS).   OVER 300 PATIENTS WERE GIVEN TREATMENT.   BOTH
MAJOR TRANQUILIZERS (PHENOTHIASINE DERIVATIVES) AND MINOR TRANQUILIZERS
(MEPROBAMATE, TRIOXASINE, ELENIUM, SEDUXIN) WERE USED.   THESE DRUGS WERE
FOUND TO BE MOST EFFECTIVE IN PATIENTS WITH DERMATIC DISEASES WITH
PERSISTENT ITCHING, CONCURRENT NEUROTIC AND NEURASTHENIC CONDITIONS WITH
MANIFESTATIONS OF RESTLESSNESS, INSOMNIA.   TRANQUILIZERS ARE EFFECTIVE
IN TREATMENT OF SYPHILOPHOBIA.   FACILITY: GLAVNYY KLINICHESKIY
VOYENNYY GOSPITAL' IM. BURDENKO, MOSKVA.

UNCLASSIFIED

UDC 534.231.1

USSR

VOYTOVICH, N. N., and SHATROV, A. D., Institute of Radio Engineering and
Electronics of the Academy of Sciences USSR, Moscow

"Series Expansion of a Field by Normal Waves in an Underwater Channel"

(Main results of this task were reported at the Fifth All-Union Symposium of
Wave Diffraction and Propagation, Leningrad, Jun 70)

Abstract: The problem of excitation of the layer of a liquid by a point
source is analyzed. The source is assumed lying on a homogeneous liquid
half-space and bounded above by an absolutely soft wall. Generally speaking,
the layer is not uniform vertically. A representation in the form of a
series is obtained for the whole innerlayer field, while each term of the
series represents a product of functions of vertical and horizontal coordi-
nates. The functions of the vertical coordinate are the same as functions
of normal waves. However, the dependence of terms of the horizontal coordi-
nate series is not reducing to the Hankel function. The effectiveness of
the obtained series expansion is illustrated by numerical data of the most
simple case of a layer homogeneous over the whole depth. Three illustrations,
two tables, twenty seven formulas, sixteen bibliographical references.

1/1

USSR

SHATROV, A. D.

"On The Possibility Of An Expansion Of Fields In Open Waveguides And Cavities"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1153-1160

Abstract: In a previous paper by the author [cf. Radiotekhnika i elektronika, 1970, 15, 9, 1806], the solution of the problem of excitation of an open laminated waveguide is constructed in the form of discrete expansions with respect to the waves, corresponding to all the roots of the dispersion equation. These expansions are obtained from the integral representations with the aid of the Mittag-Leffler theorem. In the present paper another more simple derivation of expansions of this type is explained and some of its special features are noted. Analagous special features are also characteristic for expansions with respect to damped oscillations in open cavities. The author thanks B.Z. Katsenelenbaum and V.V. Shevchenko for attention to the work, and is grateful to N.Ye. Mal'tsev for a series of observations. 11 ref. Received by editors, 4 May 1971.

UDC 911.3:616.34(575.1)

USSR

SHATROV, I. I., POKROVSKAYA, M. P., KRASKINA, N. A., BRAYNINA, R. A., ELKIN, I. I., SKVORTSOV, V. V., KILESSO, V. A., BUNIN, K. V., NIKIFOROV, V. N., POKROVSKIY, V. I., and STARSHINOVA, V. S.

"Current Status of Typhoid"

Translation: During the last seven years, the incidence of typhoid has decreased each year by 6-7% on the average in this country. Maximum drops were observed in the Belorussian SSR, Kazakh SSR, Lithuanian SSR, Latvian SSR, Armenian SSR, and Estonian SSR; minimum drops were found in the Uzbek SSR and Kirghiz SSR. During the last two years, the incidence of typhoid was 10% higher among rural residents than among urban residents. In comparison with 1964, a drop in incidence of approximately 40% was observed; in rural locations, the drop was 23%. The leading significance of the water factor in transfer and distribution of the agent of typhoid is

- 34 -

1/2

UNCLASSIFIED   PROCESSING DATE--13NOV70

1/2   024
TITLE--SERUM PROPHYLAXIS OF MEASLES -U-

AUTHOR-(04)-SHATROV, I.I., MASTYUKOVA, YU.N., IGNATYEVA, G.V., IVANOVA, L.M.

CCUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII EPIDEIOLOGII I IMMUNOBIOLOGII, 1970, NR 3, PP 120-125

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, MEASLES, BLOOD SERUM, GAMMA GLOBULIN

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1477

STEP NO--UR/0016/70/000/003/0120/0125

CIRC ACCESSION NO--AP0109537

UNCLASSIFIED

2/2   024
CIRC ACCESSION NO--AP0109537
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE RESULTS OF
STUDYING THE CLINICO EPIDEMIOLOGICAL EFFICACY OF VARIOUS GAMMA GLOBULIN
DOSES IN THE FOCI WITH VARIOUS EPIDEMIOLOGICAL CONDITIONS DEMONSTRATED
THAT THE EFFICACY OF SERUM PROPHYLAXIS OF MEASLES DEPENDED ON A NUMBER
OF FACTORS; THE AGE OF THE CHILDREN VACCINATED AND THE EPIDEMIOLOGICAL
SITUATION IN THE FOCUS (THE DURATION OF EXPOSURE TO THE SOURCE OF
INFECTION AND THE SEVERITY OF MEASLES IN THE PATIENT) THE DOSE, THE
PERIOD OF ADMINISTRATION OF GAMMA-GLOBULIN AFTER THE CONTACT, AND THE
CONTENT OF SPECIFIC ANTIBODIES IN IT. THES FACTORS PRODUCED A
SIGNIFICANT EFFECT NOR ONLY ON THE EXTENT OF MODIFICATIONOF THE
INFECTIOUS PROCESS, BUT ALSO ON THE FORMATION OF SPECIFIC ANTIBODIES IN
THE PERSONS VACCINATED. THE DOSE OF GAMMA-GLOBULIN WHICH PRODUCES IN 1
TO 4 YEAR OLD CHILDREN A MITIGATED CORSE OF MEASLES IF THEY CONTRACT THE
DISEASE AND AN INTENSIVE DEVELOPMENT OF IMMUNOLOGICAL PROCESSES, IS 1.5
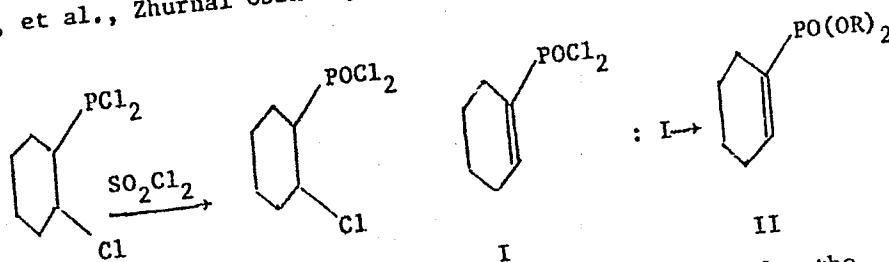ML.

UDC 547.241

Abstract: A study was made of new derivatives of cyclohexenyl-1 and 2-phos-
phonic acids. When oxidizing 2-chlorocyclohexyldichlorophosphine (obtained by
addition of PCl$_3$ to the cyclohexene under the effect of γ-radiation) [L. L.
Shchukovskaya, et al., DAN SSSR, No 179, 892, 1968] by sulfuryl chloride in
an inert organic solvent at 0-10°, the formation of a mixture of acid
dichlorides of 2-chlorocyclohexylphosphonic acid and cyclohexene-1-ylphosphonic
acid (I) with predominance of the latter was observed for the first time. By
analysis for the "common" and "hydrolyzable" chlorine, the content of (I) in
the mixture is greater when the reaction is performed in ether than in CCl$_4$
or benzene. When treating the (I) isolated by redistillation with aliphatic
alcohols (C$_1$C$_5$) in the presence of pyridine, the corresponding esters of
cyclohexene-1-ylphosphonic acid were obtained with a 65-85% yield. The infra-
red spectra of all the substances reveal a C-C absorption band at 1,630 cm^{-1}:

1/2   - 43 -

USSR

SUMINOV, S. I., et al., Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 239-240

Physical characteristics and comparative data are presented for the mentioned products.

UDC 521.4:[629.76+629.78]

USSR

MAMOTKO, Z. N., OTPUSHCHENKO, A. Z., SHATROVSKIY, L. V.

"Certain Applications of the Numerical Solution of Variational Problems in Flight Dynamics"

V sb. Mat. metody modelir. v kosmich. issled. (Mathematical Methods of Modeling in Space Research -- Collection of Works), Moscow, "Nauka", 1971, pp 158-176 (from RZh-62. Issledovaniye kosmicheskogo prostranstva, No. 4, Apr 72, Abstract No. 4.62.293)

Translation: A group of applications of the practical solution of variational problems by the method of improving controlling functions is presented. Among these applications are: replacement of the initial problem by the reciprocal problem; transformation of the type of bonds translating limitations in the region for the selection of phase coordinates of the system into restrictions on the region for the selection of the controlling functions; separation of the variational problem into subproblems and the so-called sliding interval method. The application of certain of these examples is illustrated in the problem of deriving the useful load to a circular orbit of maximum height. 15 ref. Resume.

1/1

UDC 629.78.015.017.2

USSR

MAMOTKO, Z. N., SHATROVSKIY, L. I.

"Construction of a Mathematical Model of Controlled Motion of a Flight Vehicle Under Non-deterministic Conditions"

Mat. Metody Modelir. v Kosmich. Issled. [Mathematical Methods of Modeling in Space Research -- Collection of Works], Moscow, Nauka Press, 1971, pp 177-188, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.118 from the Resume).

Translation: A model (M) of the synthesis of control of the flight of a vehicle is constructed on the basis of the method of improvement of control functions. The M of control flight is constructed of three particular M: the M of vehicle motion, the M of production of information on the flight and the M of the control system. The introduction of errors and perturbing factors is modeled in each of the M, both random quantity and random-function types. The M is constructed in order to compare vehicles in the stages of their planning under conditions imitating the conditions of their future use as closely as possible.

1/i

- 12 -

USSR

MAMOTKO, Z. N., SHATROVSKIY, L. I.

"The Construction of a Mathematical Model of Controlled Motion of a Flight Vehicle Under Nondeterministic Conditions"

Mat. Metody Modelir. v Kosmich. Issled. [Mathematical Modeling Methods in Space Research -- Collection of Works], Moscow, Nauka Press, 1971, pp 177-188, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 B253 by the author's).

Translation: A model is constructed of synthesis of control of the flight of a vehicle, based on the method of improvement of control functions. The model of controlled flight is constructed of three particular models: a model of motion of the apparatus, a model of production of information concerning the flight and a model of the control system. The behavior of errors and perturbing factors, both of the random-quantity and of the random-function type, is modeled in each of these models. The model is constructed in order to compare apparatus during the planning stage under conditions as close as possible to the conditions of their future use.

1/1

- 17 -

UDC 629.78.062.2

USSR

SHATROVSKIY, L. I.

"Controlled Systems with Discontinuous Connections and Means of Optimization of Their Control"

Mat. Metody Modelir. v Kosmich. Issled. [Mathematical Methods of Modeling in Space Research -- Collection of Works], Moscow, Nauka Press, 1971, pp 146-157, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 4, 1972, Abstract No 4.41.123 from the Resume).

Translation: Problems of optimal control with connections undergoing first order discontinuities at a finite number of points on a trajectory are studied. The method of improvement of control functions developed earlier by the author for the solution of the problem of optimal control with continuous couplings is modified so that it can be used to solve problems with discontinuous connections as well. The use of the method is illustrated using the problem of optimization of control of a multistage vehicle. It is demonstrated that the method developed is applicable for the solution of boundary optimal control problems. 11 Biblio. Refs.

1/1

USSR

NAUMOV, V. A., et al., Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 118-121

Yu. P. Yegorov for a discussion of the results of the work. (Submitted by Academician B. A. Arbuzov, 8 Jul 72).

UDC 519.24

USSR

SOLOGUB, YE. I., SHATS, M. KH., and SHUPOV, L. P.

"Approximation of the Distribution Laws of the Pearson and Gram-Charlier Curves on an Electronic Computer"

Sb. nauch. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collection of Scientific Works of the Scientific Research and Design Institute on Concentration and Agglomeration of Ferrous Metallic Ores), No 12, 1971, pp 4-32 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V114, by K. Latyshev)

Translation: Formulas and graphs are presented for establishing the type of distribution curve based on sampling data. The study employs concepts which have already become "classic" and are presented in many handbooks and reference works.

1/1

UDC: 519.24

USSR

SOLOGUB, Ye. I., SHATS, M. Kh., SHUPOV, L. P.

"Computer Approximation of Distribution Laws by Pearson and Gram-Charlier Curves"

Sb. nauchn. tr. N.-i. i proyektn. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Design Institute on Enrichment and Agglomeration of Ferrous Metal Ores), 1971, vyp. 12, pp 4-32 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V114)

Translation: Formulas and graphs are presented for determining the type of distribution curve on the basis of sample data. The paper expounds ideas which have already become "classical" and are set forth in many texts and handbookks. K. Latyshev.

1/1

UDC: 621.373.444

USSR

GOLUBEV, A. D. and SHATS, S. Ya.

"Inductive Relaxation Circuits Using Secondary-Emission Tubes"

Moscow, Izvestia VUZ -- Radioelektronika, Vol. 25, No. 10, 1970,
pp 95-98

Abstract: Details of the operation and the design of a relaxation
oscillator involving an inductance in the dynode circuit of a
secondary emission tube are given. The circuit operation is based
on the fact that the static and dynamic dynode characteristics of
the tube are N-shaped. Where this differs from other devices with
similarly shaped characteristics, such as dynatrons and tunnel di-
odes, is that the initial section of the curve is horizontal rather
than rising. Two circuit diagrams of the oscillator are given.
The first is the simpler variety, the inductive relaxation circuit,
whose principle of operation is based on the use of the static
dynode characteristic. A more complex type is the second, the
inductance-capacitance circuit, which generates pulses with prac-
tically even peaks. Its pulses can be made much wider or narrower
than those of the conventional resistance-capacitance relaxation
oscillator circuit. Oscillograms of the circuit's output pulses
are shown.

1/1

UDC 621.43.011:533;621.5:533

USSR

REUTOVICH, L. N., SHATS, V. M., ARTMANOVA, V. T., SKOPINA, S. N.

"Hydrodynamics of Submerged Combustion Equipment (Gas Distribution)"

Tr. Leningr. n.-i. i proyekt. in-ta osnovn. khim. prom-sti (Works of the Leningrad Scientific Research and Design Institute of the Basic Chemical Industry), 1972, No. 6, pp 127-132 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3B423)

Translation: Results of studies of the degree of uniformity of the distribution of gas flow in a liquid as a function of the gas rate, the area of the useful cross section of the gas distribution device, and the depth of its immersion in the liquid are presented. Authors' abstract.

1/1

PROCESSING DATE--20NOV70

UNCLASSIFIED

1/2   016
TITLE--SEX CHROMATIN AND MALIGNANCY -U-

AUTHOR-(02)-SHATS, V.YA., MARDAKHIASHVILI, SH.I.

COUNTRY CF INFO--USSR

SOURCE--TSITOLCGIYA 1970 12(3), 273-81

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHROMATIN, GLAND, MITOSIS, TUMOR, REPRODUCTIVE SYSTEM, CANCER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0429   STEP NO--UR/9053/70/012/003/0273/0281

CIRC ACCESSION NO--AP0128000
UNCLASSIFIED

CIRC ACCESSICN NO--AP0128000
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AV. CONTENTS OF SEX CHROMATIN
OF DIFFERENT FORMS OF PATHOL. MAMMARY GLANDS AS COMPARED TO NORMAL
TISSUE ARE GIVEN. AN INVERSE RELATICN EXIST BETWEEN THE MITOTIC COEFF.
AND THE NO. OF BARR BODIES IN THE TUMOR TISSUE. THE HIGHER THE COEFF.
THE LOWER THE TISSUE SEX CHROMATIN CONTENT. COMPARISONS ARE MADE
BETWEEN THE AMT. OF SEX CHROMATIN, THE VOL. AND PLOIDY OF THE CELL
NUCLEI, AND THE MITOTIC COEFF. IN NORMAL TISSUE AND MAMMARY GLAND
TUMORS. IT SEEMS WELL ESTABLISHED THAT DISAPPEARING OF BARR BODIES
CORRELATES WITH INCREASED TUMOR MALIGNANCY.   FACILITY: DEP. LAB.
DIAGN., INST. ONCOL., LENINGRAD, USSR.

UNCLASSIFIED

UDC 621.039.53:628.165.04

USSR

D'YAKOV, A. A., KONSTANTINOVA, Ye. V., and SHATSILLO, V. G.

"Construction Materials for Distillation Desalination Equipment"

Moscow, Vodosnabzheniye i Sanitarnaya Tekhnika, No 7, 1973, pp 21-23

Abstract: The construction materials analyzed in this paper assure the necessary performance of the existing equipment. However, in trying to solve one of the most important purification problem -- lowering the net cost of the distillate -- new materials will have to be considered. In designing new equipment, one must consider the use of aluminum, various plastics, carbon steel as well as reinforced concrete, wherever applicable.

1/1

USSR

ZAKIROV, Kh. Z., and SHATSIONOK, V. R., Chair of Infectious Diseases, Samarkand Medical Institute

"Clinical Aspects of Acute Dysentery Caused by the Flexner and Sonne Bacteria"

Abstract: The course of acute Flexner and Sonne dysentery may be characterized by frequent mild and atypical forms of the disease, occasio... accompanied by gastroenteritic, enteritic or enterocolitic syndromes. ... syndromes are certain to occur in acute Sonne dysentery and are almost always accompanied by symptoms of general intoxication. Clinical manifestations of colitis or hemocolitis are weak but rectoromanoscopy often shows definite catarrhal or erosive inflammation of the mucous membrane of distal sections of the large intestine. Inflammations heal faster than during Flexner dysentery. Since the onset of this form of dysentery is varied, no single classification of its clinical forms exists. Typical and atypical forms with light, medium, or acute course and with toxic or colitic syndromes are distinguished. The atypical form, quite often occuring in Sonne dysentery, may be of gastroenteritic, enterocolitic or enteritic variety.

1/1

TITLE--EFFECT OF THE INITIAL THICKNESS OF THE STRIP ON THE KINEMATIC
  CONDITIONS OF THE ROLLING PROCESS -U-

AUTHOR-(02)-PAVLOV, I.M., SHAOTSZYA, T.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, METALLY, JAN.-FEB. 1970, (1), 113-116

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL ROLLING, ALUMINUM, COPPER, METAL STRIP, SOLID
  KINEMATICS, DYNAMIC SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0413   STEP NO--UR/0370/70/000/001/0113/0116

CIRC ACCESSION NO--AP0124164
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0124164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINEMATIC ROLLING CONDITIONS
ENCOUNTERED IN THE ROLLING OF AL AND CU STRIP WERE STUDIED IN RELATION
TO THE INITIAL STRIP THICKNESS. THE CRITICAL ANGLE INCREASED WITH
INCREASING INITIAL STRIP THICKNESS FOR A CONSTANT RELATIVE DEGREE OF
REDUCTION. THE RATIO OF THE CRITICAL ANGLE TO THE ANGLE OF NIP
INCREASED WITH DIMINISHING INITIAL STRIP THICKNESS FOR CONSTANT RELATIVE
REDUCTION. THE CURVE RELATING THE FORWARD FLOW TO THE INITIAL STRIP
THCKNESS WAS SIMILAR TO THAT RELATING THE CRITICAL ANGLE TO THE ANGLE OF
NIP.

UNCLASSIFIED

Adsorption

USSR   UDC 546.633:543.544.6

SHATSKIY, V. M., KRIVENKO, S. V., KOMISSAROVA, L. N., BEBIKH, G. F.,
PRUTKOVA, N. M., KESLER, YA. A., and TVOROGOV, V. A., Chain of Inorganic
Chemistry

"Synthesis of Novel Phosphorus Containing Sorbents and the Study of the Sorption
of Scandium on Them"

Abstract: Optimal conditions for scandium sorption and separation from iron
have been determined on a pilot-plant scale. A specific sorbent was used in the
process. It was the product of the copolymerization of styrene with divinyl-
benzene phosphorylated with $PNCl_2$, and subsequently hydrolyzed with alcoholic
potassium hydroxide solution. The optimal conditions for the separation process
on this sorbent are as follows: the sorption is carried out from a 0.1 N H_2SO_4
solution; a 7% ammonium fluoride solution is used for the desorption; under
these conditions in one "sorption-desorption" cycle the iron is isolated prac-
tically completely. Repetition of the desorption process with a fresh portion
of the desorbent removed 92% of scandium. This sorbent may be used for the con-
centration of scandium out of the solutions with high iron content. In addition
to iron this method also separates all mono- and divalent elements, rare earth
elements and other impurities from scandium.
1/1

TITLE--COMPOSITION AND SOME PROPERTIES OF COMPLEX SCANDIUM SULFATES -U-

AUTHOR-(03)-SHATSKIY, V.M., KOMISSAROVA, L.N., BASHKOV, B.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 978-82

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COMPLEX COMPOUND, SCANDIUM COMPLEX, SULFATE, THERMAL DECOMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1166   STEP NO--UR/0078/70/015/004/0978/0982

CIRC ACCESSION NO--AP0128588
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0128588
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. DIAGRAM OF (NH SUB4) SUB2 SO
SUB4 NEGATIVE SC SUB2 (SO SUB4) SUB3 NEGATIVE H SUB2 O SYSTEM AT
25DEGREES IS PRESENTED.   THE SYSTEM FORMS NH SUB4 SC(SO SUB4) SUB2 (I)
AND (NH SUB4) SUB3 SC(SO SUB4) SUB3 (II).   I, HAVING NS ALPHA 1.560 PLUS
OR MINUS 0.003 AND GAMMA 1.565 PLUS OR MINUS 0.003 IS THERMALLY STABLE
SMALLER THAN OR EQUAL TO 390DEGREES, DECOMPN. AT LARGER THAN390DEGREES
TO SC SUB2(SO SUB4) SUB3 AND AT LARGER THAN 850DEGREES, TO SC SUB2 O
SUB3.   THERMALLY LESS STABLE II DECOMP. AT 330-405DEGREES TO I AND THEN
TO SC SUB2(SO SUB4) SUB3 AND FINALLY TO SC SUB2 O SUB3.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC: 621.317.373

SHATUNOV, Ye. A.

"Measurement of Phase Angles by an Oscillographic Method With Multiplica-
tion of the Line Scanning Frequency of the Oscillograph"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatur (Calculations
of Radio Circuits and Design of Radio Equipment--collection of works), Omsk,
1970, pp 89-95 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A281)

Translation: The author points out the inadequate precision of measurement
by the method of direct evaluation of the phase shift between voltage
curves on the screen of an oscilloscope operating in the linear scanning
mode. It is shown that the method of multiplying the oscilloscope scanning
frequency increases measurement accuracy several fold; in this regard,
frequency multiplication by an even number is preferable. In particular
the proposed method increases accuracy in measuring the phase angles of
frequency-keyed signals in the dynamic mode. Five illustrations, bibliog-
raphy of three titles. E. L.

1/1

USSR   UDC: 621.317.378

SHATUNOV, Ye. A.

"Measuring Phase Shift From the Null Potential Level of Signals With a Clipped
Sine Waveform"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations
of Radio Circuits and Design of Radio Equipment--collection of works), Omsk,
1970, pp 73-79 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A278)

Translation: The author considers the problem of phase shift measurement
for nonsinusoidal signals, in particular a sine wave with "clipped" tops.
For these waveforms, the phase shift is defined as the displacement between
the points where the signals pass through zero. Individual consideration
is given to cases where measurements can be taken with conventional equip-
ment -- limiters, filters and phase meter -- and to cases which require
complication of the measurement circuit, e. g. by the introduction of
voltage amplifiers (at a low signal level) and frequency converters. Four
illustrations, bibliography of four titles. E. L.

1/1

USSR   UDC: 621.317.77

GARTVICH, V. A., KHAUSTOV, V. V., SHATUNOV, Ye. A.

"A Phase Meter Installation for Measuring Phase Shift of Phase-Keyed
Signals in the Dynamic Mode"

V sb. Raschety radiotekhn. skhem i proyektir. radioapparatury (Calculations
of Radio Circuits and Design of Radio Equipment--collection of works), Omsk,
1970, pp 85-86 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 7A281)

Translation: The article presents the technical specifications of a phase
meter installation which has been developed. The unit is designed for
signals having a sine waveform clipped by straight horizontal lines; the
signals are phase keyed at a rate of 1000 bauds and have a frequency in
the range of 50-400 kHz. Measurement accuracy is 2-5°. A block diagram
of the device and some technical characteristics are given. Bibliography
of two titles. E. L.

1/1

USSR

UDC: 621.385.6:621.3.035.44

KOGEN-DALIN, V. V., KUZNETSOV, E. V., CHERNOVA, I. M., SHATUNOVSKIY, V. L.

"Electrolytic Bath Simulation of Complex Magnetic Systems With Permanent Magnets for Microwave Devices"

Translation: The possibility of calculating complex magnetic systems by the method of simulation in an electrolytic bath is demonstrated by a shunt-controlled magnetic system of the "bracket" type. In the calculation on the model, account is taken of the nonlinear properties of the magnetic materials of the permanent magnet and the magnetically soft materials of the armature and shunt. Electric analogs with nonlinear properties are made up from a grid of linear controllable two-terminal networks which are tuned by a special procedure. Recommendations are given on making analog circuits of various sections of complex magnetic systems. A selected example is used to illustrate the possibilities of calculating the systems by simulation in a bath. Bibliography of five titles. Resumé.
1/1

USSR

UDC 8.74

SHATUNOVSKIY   V. L., et al.

"Algorithmic Language Oriented to Programmed Training"

V sb. Teoriya i praktika mash. obrabotki inform (Theory and Practice of Machine Data Processing — collection of works), Rostov-na-Donu, 1971, pp 56-63 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V582)

No abstract

1/1

USSR   UDC 547.572 : 547.241

FEDOROVA, G. K., SHATURSKIY, YA. P., MOSKALEVSKAYA, L. S., and
KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences
Ukrainian SSR

"Synthesis of β-Ketophosphinic Acids"

Abstract: Phosphorylation of α-methoxystyrene with phosphorus penta-
chloride, phenyl- and styryltetrachlorophosphorus, with subsequent
treatment of the primary reaction products with water, gives phenacyl-
phosphonic acid and phenacylphenyl- and phenacylstyrylphosphinic acids.
The product of the reaction of α-methoxystyrene with phosphorus
pentachloride when treated with sulfur dioxide is converted into
β-methoxystyrylphosphonic acid dichloride, which also gives phen-
acylphosphonic acid on hydrolysis with water.

1/1

USSR

SHATYRO, YA. I., Sverdlovsk Division of the Mathematics Institute imeni V. A. Steklov of the Academy of Sciences USSR

"Smoothness of Solutions of Certain Second-Order Degenerate Equations"

Moscow, Matematicheskiye Zametki, Academy of Sciences USSR, Vol 10, No 1, July 1971, pp 101-111

Abstract: A property of degenerate elliptical and parabolic equations is considered here; derivatives appearing in the equations belong to the same Holder class as the right side of the equations. These degenerate equations can be reduced to the form:

$$\frac{\partial u}{\partial t} - \sum_{i,j=1}^{n} a_{ij} \frac{\partial^2 u}{\partial y_i \partial y_j} - \sum_{i=1}^{n} a_i \frac{\partial u}{\partial y_i} - au -$$
$$- \sum_{i=1}^{n} y_i \frac{\partial u}{\partial x_1^i} - \sum_{j=1}^{N-1} \sum_{i=1}^{n} x_j^i \frac{\partial u}{\partial x_{j+1}^i} = f, \quad (1)$$

where $x_j (j = 1, 2, \ldots, N)$ and y are points in the space R_n. The Coefficients a_{ij}, a_i, and a, as well as the right side of equation f depend on y, x_1, ...,

1/ 2

- USSR

SHATYRO, YA. I., Matematicheskiye Zametki, Academy of Sciences USSR, Vol 10, No 1, July 1971, pp 101-111

x_N, and t. The matrix (a_{ij}) is positively defined. It is found that the second derivative with respect to y of the solution of equation (1) satisfies the Holder condition with the same indexes as the right side of the equation. It is also found that the Holder index for the derivatives   u/ x_j, generally speaking, is $(2j - 1)/(2j + 1)$ smaller than the Holder index of function f. These equations describe diffusion processes which represent a natural generalization of the process of diffusion with inertia. Smoothness of solutions of the equation

$$\mathcal{L}_0 u \equiv \sum_{i=1}^{n} \frac{\partial^2 u}{\partial y_i^2} + \sum_{i=1}^{n} y_i \frac{\partial u}{\partial x_1^i} +$$
$$+ \sum_{j=1}^{N-1} \sum_{i=1}^{n} x_j^i \frac{\partial u}{\partial x_{j+1}^i} - \frac{\partial u}{\partial t} = f. \quad (2)$$

is considered. Evaluations are obtained for second derivatives appearing in the equation.
2/2

- 18 -

USSR   UDC: 681.333

KABLIS, E. P., SATKYAVICHUS, E. B., MAKAVYATSKAS, R. A., SHAULIS, V. I.,
Kaunas Polytechnical Institute

"An Impact-Modeling Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 4, Feb 72, Author's Certificate No 326600, Division G, filed 7 Aug 70,
published 19 Jan 72, p 184

Translation: This Author's Certificate introduces an impact-modeling de-
vice which contains an operational amplifier with a diode at the output.
As a distinguishing feature of the patent, the functional possibilities of
the device are extended by connecting a special circuit in parallel with
the amplifier feedback. The circuit is comprised of a star-connected first
resistor and diode with its anode connected through a second resistor to
the output of the amplifier, while the second plate of the capacitor is
connected to the zero bus.
1/1

- 78 -

SHAULOV, Yu. KH.

SPRS 59908
C-73

3

XII-11e. EPITAXIAL DEPOSITION OF GALLIUM PHOSPHIDE FROM THE GAS PHASE USING
PHOSPHINE

[Article by B. Z. Shalumov, Yu. Kh. Shaulov; Ye. A. Ryabenko, Moscow; Novosi-
birsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristal-
lov i Plenok, Russian, 12-17 June 1972, p 174]

This paper was devoted to the development of the method of epitaxial
growth of gallium phosphide using chlorine and phosphorous hydrides. The re-
lations for the growth rates of the epitaxial films of GaP as functions of
the variable technological parameters of the process were found: the PH_3, HCl
and H_2 consumption, the temperature of the gallium source and the growth tem-
perature. By processing the relations obtained, the effect of the composition
of the gas phase on the epitaxial growth rate and on the quality of the growing
layers was determined. The composition of the gas phase was varied by varying
the concentrations of the active components of the phosphorus and gallium mono-
chloride reactions. The equations were obtained which relate the controlled
process parameters 'g the epitaxial growth rate:

$$w = K [(P_{GaCl})^a \cdot e^{-E/(RT)}_{...}] + K'_0$$

$$w = K'_0 \{1 - \frac{...}{...}\}^a \cdot ... + K''_0$$

$$w = K_0 [f(T)]^a \cdot e^{-E/(RT)}^a \cdot x^2_0$$

where a_{GaCl}, a_p are the concentrations of the gallium monochloride and the
phosphorus respectively;

T is the substrate temperature;

K_i are the constant coefficients corresponding to the various crystallo-
graphic directions of growth.

The maximum growth rate of the epitaxial films of GaP occurs for concen-
trations of a_{GaCl} = 6.5·10^-3 moles/l moles of H_2 and a_p = 15·10^-3 moles/l moles
of H_2 and a growth temperature of T = 1,043° K. The metallographic, x ray and

- 178 -

SHAU,LOV, Yu. KH.

SPRS 59208
6.73

XII-11b. KINETIC STUDIES OF THE GALLIUM TRANSPORT PROCESS BY GASEOUS HCl
WHEN SYNTHESIZING SEMICONDUCTOR COMPOUNDS OF THE $A^{III}B^V$ TYPE

[Article by B. Z. Shalumov, Yu. Kh. Shaulov, Ye. A. Eryshenko, Moscow: Novosi-
birsk, III Simpozium po Protsessam Rosta i Sintera Poluprovodnikovykh Kristal-
lov i Plenok, Novosibirsk, 12-17 June 1972, p 175]

The structural and electrophysical properties of semiconductor com-
pounds obtained in the gas transport process essentially depend on the compo-
sition and the relation of the active reaction components. In the case of
gallium-containing compounds one of the active components is gallium monochlo-
ride. In the overwhelming majority of cases, GaCl is synthesized directly dur-
ing the process of growth of the reaction of interaction of gaseous HCl with
gallium. The proposed report is devoted to the results of an experimental de-
termination of the kinetic laws of the process of gallium transport by hydro-
gen chloride and, namely, determination of the gallium transport rate, the
gallium monochloride formation rate and the study of the gas composition in
the zone of hydrochlorination of gallium. The gallium transport rate is des-
cribed by the equation

$$r_{Ga} = 0.85 \cdot 10^{-2} \cdot g_{HCl}(T - 600)^{1/2} \cdot$$

where r_{Ga} is the transport rate, moles/hr;
g_{HCl} is the hydrogen chloride consumption rate, liters/hr;
T is the hydrochlorination temperature.

In order to estimate the formation rate of GaCl, the following empirical re-
lation was obtained

$$r_{GaCl} = 2.04 \cdot 10^{-2}(g_{HCl} + 0.5)[1 - e^{-(1 - \frac{T - 573}{600})}]$$

An estimate was made of the composition of the gas phase which, depending on
the hydrogen chloride consumption and the hydrochlorination varies from $GaCl_{1.04}$
to $GaCl_{2.1}$. The optimal process conditions for hydrochlorination of gallium
were found for which the GaCl yield approaches 100 percent.

- 180 -

USSR

KOVTONYUK, N. F., KURBATOV, L. N., NOZDRIN, V. V., ORLOV, V. S., RYABENKO, Ye. A., RASKIN, A. A., ROSTUNOVA, R. P., SOLOV"YEV, A. A., SEVAST'YANOV, V. G., UMNYAGIN, A. M., SHALUMOV, B. Z., and SHAULOV, Yu. Kh.

"Some Problems of a Technological Formulation of the Process of Obtaining Epitaxial Films of Gallium Arsenide by the Gas Phase Method"

Translation: The epitaxial films of GaAs obtained were produced by the gas phase method with the use of AsH_3, Ga, and HCL. GaAs wafers served as substrates. The surface of a wafer was subjected to chemical-mechanical processing and etching with H_2SO_4: H_2O_2: H_2O in the ratio 3: 1: 1. Synthesis of the GaAs was conducted in a reaction apparatus which was thoroughly scavenged by H_2 and etched by HCl at 950° C for 30 minutes. After cooling, the Ga was loaded into the chamber. The chamber was heated to a temperature of 850° C for activation of the Ga surface. After reduction of the temperature to $100-150^\circ$ C, the GaAs substrate was introduced into the reaction zone. After heating the Ga area and the GaAs area, etching of the GaS was performed by HCl gas in a stream of AsH_3 and H_2. The films were doped by Se.

1/2

JSSR

KOVTONYUK, N. F., et al., Protsessy rosta kristallov i plenok poluprovodn. (Procedures for the Growth of Semiconductor Crystals and Films -- Collection of Works), Novosibirsk, 1970, pp 341-350 (from RZh-Elektronika i yeye primeneniye, No 7, July 1971, Abstract No 7B130)

The best specimens of film had n-type conductivity and a mobility of 4000--5000 cm^2/v.sec. Films doped by Se had a concentration of $5 \cdot 10^{17}-- 5 \cdot 10^{18}$ at/cm^3 and a mobility of 2000 cm^2/v.sec. 8 ref. V.B.

2/2

1/2   016   UNCLASSIFIED   PROCESSING DATE--30OCT70

TITLE--CALCULATION OF PHYSICOCHEMICAL PROPERTIES OF ALKYLGERMANES -U-

AUTHOR-(03)-SHAULOV, YU.KH., VYGODSKAYA, YE.M., FEDOROYA, A.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 268-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CALCULATION, ORGANOGERMANIUM COMPOUND, HYDROCARBON, PHYSICAL
   CHEMISTRY PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1265   STEP NO--UR/0076/70/044/001/0268/0269

CIRC ACCESSION NO--AP0116727
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0116727

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHYSICOCHEM. PROPERTIES (P) OF
TETRAALKYLGERMANES AND HYDROCARBONS CAN BE EXPRESSED AS A SUM OF SOME
VALUES; EACH OF THEM CORRESPONDS WITH THE PARTIAL PROPERTY
CHARACTERISTIC OF A PARTICULAR BOND. (FORMULA SHOWN ON MICROFICHE),
WHERE THE NS REFER TO THE RESP. BOND AND THE P TO THE PARTIAL PROPERTY.
THE EQUATION AS WELL AS THE METHOD OF CALCN. OF THOSE PROPERTIES ARE
GIVEN. THE CALCD. VALUES OF HEAT OF COMBUSTION FOR A SERIES OF
TETRALKYLGERMANES WERE IN A GOOD AGREEMENT WITH THE EXPTL. DATA.
FACILITY: MOSK. INST. ELEKTRON. MASHINOSTR., MOSCOW, USSR.

UNCLASSIFIED

1/2   031

UNCLASSIFIED

TITLE--ENTHALPY OF FORMATION OF TETRAPHENYLGERMANE AND GE C SUBAROMATIC
BOND ENERGY -U-

PROCESSING DATE--02OCT70

AUTHOR-(03)-SHAULOV, YU.KH., FEDOROV, A.K., GENCHEL, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 262-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOGERMANIUM COMPOUND, ENTHALPHY, HEAT OF COMBUSTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0472

STEP NO--UR/0076/70/004/001/0262/0263

CIRC ACCESSION NO--AP0107078

UNCLASSIFIED

CIRC ACCESSION NO--AP0107078
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   FROM HEAT OF COMBUSTION OF
TETRAPHENYLGERMANE, THE HEAT OF FORMATION, DELTA H SUBF DEGREES
(KCAL-MOLE), AND GE C SUBAROMATIC BOND ENERGY, E (KCAL), WERE CALCD.
THE FOLLOWING VALUES WERE OBTAINED: (DELTA H SUBF DEGREES) EQUALS 123.7,
(DELTA H SUBF DEGREES) EQUALS 102.8 FOR THE GASEOUS AND SOLID STATE,
RESP., AND E EQUALS 62. GE C SUBAROMATIC BOND ENERGY IS HIGHER THAN GE
C SUBALIPHATIC BOND ENERGY.

UNCLASSIFIED

USSR

SHAULOV, YU. KH., SHINKAREV, A. N., and PESOTSKIY, G. S., Moscow Institute of Electronic Machine-Building

"The Thermodynamics of Synthesizing Semiconducting Compounds from Organo-Elemental Compounds. I. The Thermodynamics of Triethylgallium Synthesis and Pyrolysis"

Translation: Reactions occurring in the gas phase are widely employed to obtain films of semiconducting compounds of the $A^{III}B^V$ type -- gallium nitride, phosphide, and arsenide in particular.

The low vapor pressure of gallium over its melt makes its transfer to the crystal-growth zone, using simple transport by an inert gas or hydrogen, practically impossible. Organo-elemental gallium compounds, for example triethylgallium, which has a relatively high volatility, are employed for this purpose. This practice requires a thorough investigation of the physicochemical and procedural parameters of the process.

This paper provides a thermodynamic analysis of triethylgallium synthesis and pyrolysis occurring in the reaction between gallium and ethyl chloride. 1/1

USSR

UDC: 51:155.001.57:612.82

SHAUMAN, A. M., BEREZNAYA, I. Ya.

"Conversion of Input Information by a Chain of Neuron Models"

V sb. Neyrobionika (Neurobionics--collection of works), Kiev, 1970, pp 177-183 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V893)

Translation: The simplest homogeneous branchless chain of series connected neuron models, called a base chain, is treated as a filter which permits division of all input sequences into two classes: zero and non-zero. It is shown that the zero sequences of a base chain of n neurons form a certain regular system in the shape of a convergent tree. Formulas are derived for calculating the volume of the class of zero sequences for a base chain of given length, and for determining the form of the zero sequences and their properties. Corresponding theorems and their proofs are presented. V. Mikheyev.

1/1

USSR

UDC: 681.3

SHAUMAN, A. M.

"Problems of Constructing Adaptive Algorithms for Arithmetic Operations"

V sb. Vychisl. tekhn. i vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 8, Leningrad, Leningrad University, 1971, pp 3-18 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V796)

Translation: The paper discusses a computer which in certain situations has the ability to adapt in such a way that some characteristics may improve while others may not change or may deteriorate. Situations of this kind may be either problems with a large volume of computations but on numbers with few digital places (where computer accuracy is excessive) or failure of one or more digital places in the computer register (when it is required to maintain maximum possible accuracy). In the first instance, higher speed can be achieved than in a similar computer with stable character- istics, and in the second instance computer operation can be considered normal in spite of the failure of part of the hardware if predetermined

1/2

- 42 -

USSR

SHAUMAN, A. M., Vychisl. tekhn. i vopr. kibernet., vyp. 8, Leningrad, Leningrad University, 1971, pp 3-18

characteristics do not go beyond permissible limits. The author considers a simple algorithm of adaptive addition and an algorithm of adaptive multiplication and modifications of these algorithms with detailed investigations of the effect which the number of digital places that have failed and the adaptive algorithm selected have on the results of an operation. Consideration is given to the effect which the number system has on error. The results show that in a computer with digital elements which have failed, a gain in speed at the cost of accuracy can always be realized when some adaptive algorithm is used. A. Khalamayzer.

2/2

USSR

UDC: 51:621.391

SHAUMAN, A. M.

"On One Class of Interference-Killing Arithmetic Codes"

V sb. Vychisl. tekhn. i vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), vyp. 6, Leningrad, Leningrad University, 1971, pp 37-43 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V748)

Translation: The author studies AN-codes such that

$$A(r^n - 1) = 2^m - 1,$$

where r is the base of the number system,

$$AN = \sum_{i=1}^{m} a_i 2^{i-1}, \quad a_i = 0; \ 1, \quad 0 < AN < A(r^n - 1).$$

The cases $r = 2^k$, $k = 0$, 1, 2,... and $r = 10$ are considered. These codes are recommended for use at small values of n and k in the detection mode. It is shown that the speed of a binary-decimal adder may not change when length is increased. V. Dyn'kin.
1/1

USSR

BEREZNAYA, I. Ya., SHAUMAN, A. M.

"Null Sequences for an n-Cycle Line Filter"

Translation: The authors consider the properties of input null sequences for an n-cycle line filter. A convergent tree of null sequences is constructed. It is noted that when such a tree has been constructed, the form of the output sequence of any element of the n-cycle filter can be determined correct to the class of equivalence when any sequence with a period equal to a power of two is sent to the output of the filter. V. Mikheyev.

1/1

USSR

SHAUMAN, A. M.

"Problems of Constructing Adaptive Algorithms for Arithmetic Operations II"

Translation: For part 1 see RZhMat, 1971, 11V796. The author considers the properties of an adaptive algorithm for division applicable to the typical structure of a serial computer. An estimate is presented for the error in the result of division when there is a failure in part of the digital places of one of the registers of the arithmetic device; the appropriate readjustment of the system by means of an approximate adaptive algorithm is presented. It is noted that the proposed adaptive algorithms may be used even where readjustment is due to the requirement for increasing the speed of division rather than to damage in the structure. The degree of adaptivity of the proposed division algorithm is determined in the appendix as illustrated by the binary system of notation. V. Mikheyev.
1/1

USSR

UDC: 681.3

SHAUMAN, A. M., CHIRKOV, M. K.

"Execution of Arithmetic Operations With Automatic Location of the Decimal Point"

V sb. Vychisl. tekhn. i vopr. kibernet. (Computer Technology and Problems of Cybernetics--collection of works), Vyp. 6, Leningrad, Leningrad University, 1971, pp 3-20 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V897)

[No abstract]

1/1

USSR

SHAUMAN, A. M.

UDC: 681.3

"An Algorithm of Approximate Multiplication for the Decimal System of Notation"

V sb. <u>Vychisl. tekhn. i vopr. kibernet.</u> (Computer Technology and Problems of Cybernetics--collection of works), vyp. 6, Leningrad, Leningrad University, 1971, pp 21-27 (from <u>RZh-Kibernetika</u>, No 12, Dec 71, Abstract No 12V899)

[No abstract]

1/1

USSR

SHAUMAN, A. M.

"Combined Interference-Protective Arithmetic Codes"

Translation: The properties of combined arithmetic codes are studied. In these
codes, a message has the form (AN, p), where AN is the coded message transmitted,
while p is a control message, $p \equiv AN \pmod{\beta}$. The codes suggested are generali-
zations of indivisible AN codes and divisible arithmetic codes, where a coded
sample is represented as (N, p). Having in mind individual errors, the authors
study set W of modulo A error residues, which are divided into Ω subsets
ω_λ $(1 \leq \lambda \leq \Omega)$ such that the residues of these subsets are modulo A comparable
to a certain fixed number characteristic for each subset. The elements of each
subset belong to one class of equivalence. Formulas are presented for calcula-
tion of the number of classes of equivalence, the boundaries of the sets of each
class and conditions for selection of optimal values of A and β.

USSR

UDC 681.142.62

YEVSEYEV, G. T., MARCHUK, A. A., KHOMOVNENKO, M. G., CHIRKOV, M. K., Candidate of Physical and Mathematical Sciences, SHAUMAN, A. M., Candidate of Physical and Mathematical Sciences

"Keyboard Data Input Device for Computers"

Abstract: This article contains a description of a keyboard electronic digital data input device built from two ferrite cores with external magnetization. The device is designed for generating a single pulse which proceeds synchronously with the basic cycle frequency to the computer after each complete movement of one of the keys. The device was designed to satisfy requirements of high reliability and high speed. By using two different outputs from one key for entering the code and blocking, the effect of vibration and other mechanical effects are excluded, and all remaining keys are blocked effectively on pressing one of them. The input device is constructed as a closed automatic control system insuring uniqueness of the input data.

1/1

- 53 -

USSR   UDC 681.142.62

YEVSEYEV, G. T., MARCHUK, A. A., KHOMOVNENKO, M. G., CHIRKOV, M. K., Candidate
of Physical and Mathematical Sciences, SHAUMAN, A. M., Candidate of Physical
and Mathematical Sciences

"Keyboard Data Input Device for Computers"

Kiev, Mekhanizatsiya i Avtomatizatsiya Upravleniya, No 6, November-December,
1970, pp 57-59

Abstract: This article contains a description of a keyboard electronic digital
data input device built from two ferrite cores with external magnetization.
The device is designed for generating a single pulse which proceeds synchronously
with the basic cycle frequency to the computer after each complete movement
of one of the keys. The device was designed to satisfy requirements of high
reliability and high speed. By using two different outputs from one key for
entering the code and blocking, the effect of vibration and other mechanical
effects are excluded, and all remaining keys are blocked effectively on
pressing one of them. The input device is constructed as a closed automatic
control system insuring uniqueness of the input data.
1/1

- 53 -

Industrial

USSR

UDC 621.90

SHAUMYAN, G. A., Doctor of Technical Sciences, Professor; YERMAKOV, YU. M.,
Engineer, Moscow Higher Technical School imeni N. E. Baumann

"Study of the Codirectional Turning Method in Working Internal Surfaces"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12,
1971, pp 152-157

Abstract: Studies of the codirectional turning of internal surfaces yielded
expressions for three component cutting forces as a function of cutting rate,
supply, and depth and also of the tool geometry. The codirectional turning
method was tested on 1K62 and 1D62 lathes and the apron of the 1K62 lathe was
equipped for displacement in the transverse direction of a worm reducer with
a drive independent of the machine shaft. The tool shaft in which the cutting
head was fastened was rotated with a supply coinciding with the rate of rota-
tion of the part. It was found that with a constant cutting width the cutting
forces decrease toward the end of the working. The cutting forces in all
coordinates in turning with a circular supply are determined by formulas similar
to those for ordinary cutting with the thickness of the section A replaced by

1/2

USSR

SHAUMYAN, G. A., et al, Izvestiya vysshikh uchebnykh zavedeniy, Mashino-
stroyeniye, No. 12, 1971, pp 152-157

the supply S. The effect of the lead angle on the cutting force is the same
as in ordinary turning. The cutting forces in codirectional turning are
20-40% less than in counterturning due to the transformation of the angles of
the cutting force.

2/2

USSR

AYVAZYAN, O. A., SHAUMYAN, G. Sh.

UDC: 519.2

"Modeling the Mechanism of Formation of Family Incomes"

Moscow, Opyt primeneniya prikl. metodov mat. i vychisl. tekhn.
v nar. kh-ve--sbornik (Experience in Using Applied Methods of
Mathematics and Computer Technology in the National Economy--
collection of works), "Statistika", 1972, pp 23-38 (from RZh-
-Kibernetika, No 5, May 73, abstract No 5V387 by the authors)

Translation: The paper proposes a variant of a probabilistic
statistical model which describes the mechanism of formation
of the law of distribution of families and family members
with respect to mean per capita income. In this connection,
the basic input (basis) parameters of the model are the param-
eters of distribution of workers, those on pension and those
receiving stipends in accordance with the sizes of wages,
pensions and stipends respectively, as well as certain charac-
teristics of family structure. The initial premises used in
the model rest on the results of a one-time sample examination

1/2

USSR

AYVAZYAN, O. A., SHAUMYAN, G. Sh., Opyt primeneniya prikl. metodov mat. i vychisl. tekhn. v nar. kh-ve, "Stistika", 1972, pp 23-38

of the makeup, income and living conditions of factory and office workers for 1967. Calculations for experimental verification were done in the Computing Center of the State Planning Commission of the Armenian SSR.

2/2

- 31 -

USSR   UDC 533.6.011.8

SHAVALIYEV, M. SH., Institute of Theoretical and Applied Mechanics, Siberian
Department, USSR Academy of Sciences, Novosibirsk

"Slow Movements of Bodies in Gaseous Mixtures"

Abstract: Use of the Navier-Stokes equations is not sufficient to describe
certain cases of movement of a dense medium, such as, for example, the
so-called radiometric phenomena. In the present study are considered the
slow movements of bodies in binary gaseous mixtures when the characteristic
variation of centration Δx_1 is determined by the boundary conditions.

It is demonstrated with use of concrete examples that in the case of
slow flows of gaseous mixtures close to bodies, such as that created by large
drops in concentration, Barnett diffusion stresses must be allowed for in the
equations of motion, and also the boundary condition of diffusion slippage.

1/1

INCREASING THE USE OF SINGLE-LOOP ATOMIC ELECTRIC POWER STATION TURBINE
CONDENSERS AS EMERGENCY MODE BLOWOFF STEAM RECEPTACLES

UDC 621.

One of the main problems in ensuring safe operation of single-loop atomic
electric stations is to prevent escape of radioactive steam from the station
under different operating conditions of the equipment. It is particularly im-
portant to solve this problem under emergency conditions, including the most
severe condition when the station shuts down completely. For single-loop atom-
ing water atomic electric station, the steam receptacles primarily employed
are the turbine condensers, which receive steam blowoffs amounting to 50 per
cent of the live-steam consumption per turbine. Thus, for the K-500-65-3000
turbine, a blowoff of 1450 t/hr into the condenser is allowed. A steam-
throttling valve is installed ahead of the condenser and throttles the steam
from 70 to 10 kg/cm². It is obvious that the condenser can perform its con-
densing functions only when it is supplied with cooling water, which is usually
pumped from the cooling pond. The power rating of such pumps for one K-500-
65/3000 turbine reaches 2500 - 3000 kW. Therefore, when the system shuts down,
it is impossible to switch the motors of these pumps to the Diesel stations
network. In view of this, single-loop stations with boiling-water reactors
are equipped with another type of steam receivers, namely bubblers. A bubbler
is a vessel of 3600 mm diameter and 21 m long, filled with water to 2/3 of its
volume. Steam-distributing rakes with nozzles are placed under the water. Each
the steam is dumped into the bubbler water through these rakes and is con-
densed there. The steam is blown off through protective valves and is back-
reduction devices NRU-R. The bubbler nozzles are designed to receive the
total steam flow generated by the reactor. When determining the number of
bubblers, such care is taken to see to it that the accumulating capacity of
the latter is enhanced and the pressure in the bubbler rises to 12 kg/cm². It
is possible to blow off the steam into the technological condenser, to which
cooling water is also fed. The flow of water is then smaller by a factor of
15 than the flow to the condensers of one turbine, and therefore the water
is fed by independent pumps, the motors of which are connected to the
network (fed from Diesel generators). The overall scheme of steam blowoff
into the steam receivers is shown in Figure 1.

- 21 -

Plant Pathology

USSR

UDC 632.4:633.11:582.285.2(47+47)

LESOVOY, M. P., FEDOROVA, V. A., SHKODENKO, V. I. TERESHCHENKO, B. A.,
SHOPINA, V, V., IBRAGIMOV, G. R., AKHMEDOV, S. A., YEROGOVA, N. L.,
MAMONTOVA, A. N., PERESYPKIN, V. F., BOYKO, Yu. I., SHAVARINA, Z. A.,
CHUMAKOV, A. Ye., YAREMENKO, Z. I., PAYCHADZE, L. V., and EL'CHIBAYEV, A. A.,
All-Union Institute of Plant Protection, Ukrainian Institute of Plant
Protection, Ukrainian Agricultural Academy, Azerbaydzhan Institute of Agricul-
ture, Central Asian Institute of Plant Pathology, and Kazan' Institute of
Plant Protection, Georgian Institute of Plant Pathology

"Race Formation in Puccinia triticina Eriks. and P. striiformis West. in the
USSR"

Abstract: Study of the causative agents of orange leaf and stripe rusts of
wheat in different parts of the Soviet Union and some other European countries
showed that, despite the great variety of races, only a few are responsible for
epiphytotics. The main races are fairly constant from year to year. This
stabilization is due to the fact that that more than 90% of all the regionalized
wheat varieties in the USSR are susceptible to all races of the pathogens. The
racial composition of the pathogens in the USSR is similar to that occurring
elsewhere in Europe because of the exchange of original forms and use of the
1/2

USSR

LESOVOY, M. P., et al., Mikologiya i Fitopatologiya, No 6, 1972, pp 428-434

same components in breeding wheat varieties. The appearance of new races and biotypes and changes in their virulence are the result of mutation, hetero-karyosis, resistant varieties, and sexual hybridization.

2/2

USSR

UDC: 521.396.677(088.8)

SHAVEL', M. A., LUK, L. N., Minsk Radio Plant

"A Device for Orienting an Antenna With Respect to Azimuth, Angle of Elevation and Polarization"

USSR Author's Certificate No 262998, filed 29 Jun 68, published 10 Jun 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6B99 P)

Translation: The proposed device contains an azimuth rotation mechanism fastened on a fixed base, a mechanism for rotation with respect to angle of elevation mounted on a disc on the output shaft of the azimuth rotation mechanism, and a mechanism for rotating the plane of polarization. In order to simplify remote control of the antenna, the output shafts of the mechanism for rotation with resepct to angle of elevation and the mechanism for rotating the plane of polarization are coaxial. The shaft of the antenna chassis is kinematically connected by a bevel gear couple to the output shaft of the mechanism for rotating the plane of polarization, and movably mounted inside the output shaft of the mechanism for rotation with respect to angle of elevation. The mechanism for rotating the plane of polarization is fastened to a disc on the output shaft of the mechanism for azimuth rotation.
1/1

1/2   024

TITLE--ANODIC BEHAVIOR OF STAINLESS STEEL KH18N10T -U-

UNCLASSIFIED

PROCESSING DATE--18SEP70

AUTHOR-(05)-MALTSEV, V.F., SHAVEL, M.M., MARUNENKO, L.V., GAMALI, T.A., SMIRNOVA, N.A.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 140-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STAINLESS STEEL, STAINLESS STEEL COMPOSITION, MANGANESE STEEL, SILICON STEEL, CHROMIUM STEEL, NICKEL STEEL, TITANIUM STEEL, ELECTROLYTE, CHLORIDE, THIOUREA, SOLUBILITY/(U)KH18N10T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0601

CIRC ACCESSION NO--AP0107198

STEP NO--UR/0032/70/036/002/0140/0143

UNCLASSIFIED

UNCLASSIFIED

CIRC ACCESSION NC--AP0107198 PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POTENTIAL TIME PLOTS ARE GIVEN FOR STAINLESS STEEL KH18N10T CONTG. C 0.082, MN 1.17, SI 0.58, CR 17.5, NI 10.8, AND TI 0.33PERCENT DURING ITS ANODIC DISSOLN. IN DIFFERENCE ELECTROLYTES. CONST. PASSIVATION AND IRREGULARITIES IN LOCAL DISSOLN. OF THE STEEL WERE OBSERVED IN 0.2N CCL SUB3 CO SUB2 H, 0.2N ACOH, 0.2N GLYCINE, OR 0.005N H SUB2 SO SUB4. SMOOTH ANODIC DISSOLN., GOOD ISOLATION OF THE CARBIDES, AND ELIMINATION OF PASSIVATION WERE ACHIEVED IN THE MIXED ELECTROLYTE CONTG. M KCL, 0.24M HCL, 10 G THIOUREA-L., AND 0.2N CARBOXYLIC ACID. ADDNS. OF CHLORIDES AND OF THIOUREA ALSO IMPROVE THE ANODIC DISSOLN. IN DIL. H SUB2 SO SUB4 OR H SUB3 PO SUB4.

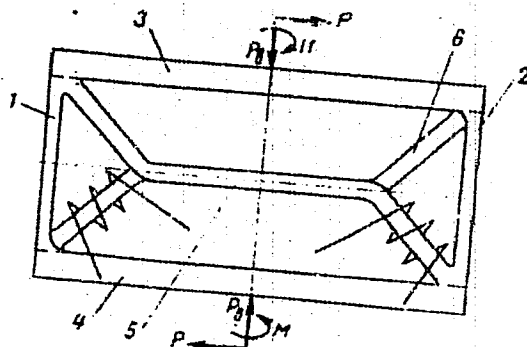UNCLASSIFIED

AA0044249   SHAVER   AB

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243910 FLEXIBLE MAGNETIC STRAIN RECORDER comprises
a magnetic conductor an excitation winding
and a measuring winding in the form of a parallogram
with a diagonal crosspiece joining the front and back
edges. It contains two vertical supports 1 and 2,
two horizontal crosspieces 3 and 4 and two diagonal
crosspieces 5 and 6 of a magnetic material. The
elements are selected in such a way, that the mag-
netic resistance of the supports 1 and 2 and cross-
pieces 3 and 4 are equal. On one of the diagonal
crosspieces there is wound an excitation coil and
on the other a measuring winding. Thus the recorder
forms a bridge of magnetic resistances in which the
supports are connected to the opposite shoulders
of the bridge.
21.6.67 as 1166575/18-10.R.I.RITMAN et al.(26.9.69)
Bul 17/14.5.69. Class 42k.Int.Cl.G 01 1.

1/2

4

197'70'758

AA0044249

AUTHORS: Ritman, R. I., Shaver, A. B., Vorontsov, A. A.

2/2

19770759

USSR

DRUSKINA, L. S., and SHAVER, I. KH.   UDC 661.143:546.34'161(088.8)

"Luminophore for Thermoluminescent Dosimetry Based on Lithium Fluoride"

USSR Author;s certificate No 361189, filed 8 Dec 70, published 15 Feb 73
(from RZh-Khimiya, No 19, Oct 73, Abstract No 19L146 P)

Translation: Manganese is added to the luminescent composition based on LiF
with addition of calcium, resulting in an increased sensitivity of the
composition towards ionizing radiation which gives a thermoluminescence
curve with 1-2 maxima and increases the stability of the dosimetric informa-
tion. Calcium and manganese are added as fluorides in quantities of 0.5-3
and 0.015-0.3 weight-% respectively.

1/1

USSR

KIRGINTSEV, A. N., YAKOBI, N. YA., and SHAVINSKIY, B. M., Institute of
Inorganic Chemistry, Siberian Branch of the Academy of Sciences USSR

UDC 542.65:546.212

"Directed Crystallization of "Sea" Water"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,
pp 2318-2320

Abstract: Distribution of the main components of "sea" water in solid phase
was studied during directed crystallization of a solution with following
composition: $NaCl$ -- 2.7%; $MgSO_4$ -- 0.33%; $CaCl_2$ -- 0.11%. Distribution
of these components in solid phase is determined by total concentration and
not by the concentration of a single component. All the components have
practically identical coefficients of distribution regardless of the con-
centration. The coefficient of distribution is practically constant in the
range of the crystallization rate from 0.4 to 1.8 cm/hr. In this range
stirring has very little effect on the coefficient of distribution.

1/1

TITLE--STEEL -U-   UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR-(04)-SHAVKUNOV, N.D., NI, V.N., STOLETNIY, M.F., VOVSINA, A.D.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 263,893

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--STEEL, CHEMICAL COMPOSITION, MECHANICAL PROPERTY, CARBON STEEL, MANGANESE STEEL, SILICON STEEL, PHOSPHORUS STEEL, CHROMIUM STEEL, SULFUR, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1086

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0130120

UNCLASSIFIED

CIRC ACCESSION NO--AA0130120   UNCLASSIFIED   PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. A STEEL WITH IMPROVED MECH.
   PROPERTIES HAS THE FOLLOWING COMPN.:   C 1.6-1.9, MN 1.6-1.9, SI 1.2-1.5,
   V 0.2-0.4, CR SMALLER THAN 0.3, S SMALLER THAN 0.04, P SMALLER THAN
   0.09PERCENT, AND FE THE REMAINDER.

UNCLASSIFIED

USSR

GAVRILOV, S. F., SHAVLOVSKAYA, N. I.

UDC 623.983:621.395

"Hydroacoustic Oscillation Rate Detector"

USSR Author's Certificate No 273556, filed 20 Jan 69, published 19 Nov 70 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8A447P)

Translation: A device is proposed which can be used during construction of a deep-water hydroacoustic oscillation rate detector. In order to increase its sensitivity, the movable housing is in the form of watertight shell of spheri- cal form with a connecting piece open at the top, and the immovable part of the signal pickup is rigidly secured to a rod fulfilled along with the hous- ing of the acoustic-transparent stream-lined unit and passing through the connecting piece into the movable housing. During immersion in water, the stream-lined unit under the effect of hydrostatic pressure is filled with water to a specific level, above which an air cavity is formed. Meanwhile the movable housing of the detector is found to be almost completely immersed in the water with the exception of the upper part of the connecting piece communicating with the air cavity. Because the movable housing together with the elements rigidly secured to it has zero or positive buoyancy and
1/2

USSR

GAVRILOV, S. F., SHAVLOVSKAYA, N. I., USSR Author's Certificate No 273556, filed 20 Jan 69, published 19 Nov 70 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8A447P)

its size is considerably smaller than the length of the wave, then, under the influence of the sound wave, it performs oscillations in a horizontal plane together with the particles of the environment. According to the degree of immersion of the detector, the exterior hydrostatic pressure on the movable housing is automatically balanced by the pressure of the air from within the housing, entering there through the connecting piece. The scheme of the device is given. 1 ill. L. K.

2/2

1/2   018   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--PRODUCTION OF CONSIDERABLE AMOUNT OF RIBOFLAVIN BY SOME YEAST
    STRAINS OF THE DEBARYOMYCES GENUS -U-
AUTHOR--(03)-SHAVLOVSKIY, G.M., KSHEMINSKAYA, G.P., VARIVODA, M.I.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 327-330

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RIBOFLAVIN, YEAST, ASPARAGINE, IRON, CULTURE MEDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1407
                              STEP NO--UR/0220/70/039/002/0327/0330
CIRC ACCESSION NO--AP0054270
                    UNCLASSIFIED

TITLE--PRODUCTION OF CONSIDERABLE AMOUNT OF RIBOFLAVIN BY SOME YEAST
  STRAINS OF THE DEBARYOMYCES GENUS -U-

AUTHOR-(03)-SHAVLOVSKIY, G.M., KSHEMINSKAYA, G.P., VARIVODA, M.I.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 2, PP 327-330

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RIBOFLAVIN, YEAST, ASPARAGINE, IRON, CULTURE MEDIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1407   STEP NO--UR/0220/70/039/002/0327/0330

CIRC ACCESSION NO--AP0054270
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0054270
ABSTRACT
  DEBARYOMYCES KLOCKERI AND ONE STRAIN OF D. GUILLIERMONDI REQUIRED
  BIOTIN. YEAST AUTOLYSATE AND ASPARAGINE STIMULATED GROWTH OF THESE
  STRAINS. THREE STRAINS OF D. KLOCKERI (U-102, U-104, AND U-105) AND ONE
  STRAIN OF D. GUILLIERMONDII (U-106), WHEN GROWN ON IRON DEFICIENT MEDIA,
  ACCUMULATED CONSIDERABLE AMOUNT OF RIBOFLAVIN (20 TO 60 MUG-ML) IN THE
  CULTURAL BROTH. THE PRESENCE OF IRON IN THE MEDIUM AT A CONCENTRATION
  OF 0.1 TO 0.2 MUG-ML INHIBITED RIBOFLAVIN SYNTHESIS BY THE CULTURES.
  FREE RIBOFLAVIN AND FMN WERE FOUND IN THE CULTURAL BROTH OF D. KLOCKERI
  U-102 AND D. GUILLIERMONDII U-106. THE CONCENTRATION OF FMN WAS 3.5 TO
  3.6PERCENT OF THE TOTAL CONTENT OF FLAVINES ACCUMULATED BY THE CELLS IN
  THE MEDIUM.

CIRC ACCESSION NO--AP0054270
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALL 5 STUDIED STRAINS OF
  DEBARYOMYCES KLOCKERI AND ONE STRAIN OF D. GUILLIERMONDI REQUIRED
  BIOTIN. YEAST AUTOLYSATE AND ASPARAGINE STIMULATED GROWTH OF THESE
  STRAINS. THREE STRAINS OF D. KLOCKERI (U-102, U-104, AND U-105) AND ONE
  STRAIN OF D. GUILLIERMONDII (U-106), WHEN GROWN ON IRON DEFICIENT MEDIA,
  ACCUMULATED CONSIDERABLE AMOUNT OF RIBOFLAVIN (20 TO 60 MUG-ML) IN THE
  CULTURAL BROTH. THE PRESENCE OF IRON IN THE MEDIUM AT A CONCENTRATION
  OF 0.1 TO 0.2 MUG-ML INHIBITED RIBOFLAVIN SYNTHESIS BY THE CULTURES.
  FREE RIBOFLAVIN AND FMN WERE FOUND IN THE CULTURAL BROTH OF D. KLOCKERI
  U-102 AND D. GUILLIERMONDII U-106. THE CONCENTRATION OF FMN WAS 3.5 TO
  3.6PERCENT OF THE TOTAL CONTENT OF FLAVINES ACCUMULATED BY THE CELLS IN
  THE MEDIUM.

UNCLASSIFIED

USSR   UDC: 621.373.431

SHAVOCHKIN, Yu. I.

"A Wide-Band Power Pulse Generator With Thyratron Tube Commutator"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Elec-
tronic Technology. Scientific and Technical Collection. Technology and
Organization of Production), 1970, vyp. 5(37), pp 98-106 (from RZh-Radio-
tekhnika, No 2, Feb 71, Abstract No 2G225)

Translation: The author describes the circuit of a wide-band generator of
high-power modulating pulses based on a thyratron and two modulator tetrodes.
The circuit operates over a wide range of durations, repetition frequencies,
currents and voltages. A capacitor or artificial shaping line with leading
edge correction by a special peaking circuit can be used as the energy accu-
mulator which discharges upon transmission of the ignition pulse. The ex-
perimentally found characteristics of the generator are presented. A
drawback of the cirtuit is pointed out — the necessity for adjusting the
shape of the peak when the amplitude of the pulse current is changed.
Bibliography of four titles. N. S.

1/1

USSR

UDC: none

SHAVOCHKIN, Yu. I.

"Survey of Wide-Band Pulse Generation Circuits Based on Soft Commutating Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronics Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 2(34), pp 74-88 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G175)

Translation: The author discusses the disadvantages of hard wide-band generators based on tubes with partial discharge of an accumulator (large overall dimensions, low efficiency, complexity, etc.) and the advantages of using light commutating devices (hydrogen thyratrons and ignitrons). A survey is given of circuits which are used, distinguished by the presence of two commutating devices, one being used for shaping the pulse front and vertex, and the other for shaping the trailing edge. Various modifications of two basic circuit types are discussed -- with total and partial accumulator discharge. An analysis of these circuits shows the advantage of circuits with partial discharge from the standpoint of efficiency; however, they may be used only with a low prf and long pulse duration. Bibliography of 24 titles. N. S.

1/1

Theoretical Physics

USSR

CHERNIKOV, N. A., and SHAVOKHINA, N. S., Joint Institute of Nuclear Research

"The Invariant Box Method in the Quantum Theory of the Spinor Field"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 15, No 1, Apr 73, pp 91-99

Abstract: Preprint R2-6109,OIYaI 1971 by the same authors formulates the principles of the quantum theory of the spinor field in Riemann spaces. A spherical de Sitter space is of particular interest because it is a space of constant curvature, permitting a 10-parameter isometry group. As the radius becomes infinitely large, this group is transformed into a Poincaré group, just as the de Sitter universe becomes a Poincaré-Minkowski universe. The Fourier integrals required in the latter space are replaced by series in the de Sitter space, because its spatial part is a compact 3-dimensional sphere. Thus the study of the quantum theory of a field in the spherical de Sitter universe leads to the invariant box method for plane space time, as pointed out by Chernikov and Tagirov, Annals of the Institute of Henri Poincaré Vol 9, No 2, Section A, Paris, 1968. This article applies the general principles of the quantum theory of a spinor field to a spherical de Sitter universe, leading to the invariant box method.
1/3

USSR

The first section of the article is a summary of material covered in more detail in preprint R2-6109. It establishes the basic concepts. The second section covers the application of the Dirac equation in the spherical universe, starting from a representation of the de Sitter space as a single cavity hyperboloid in 5-dimensional Poincaré-Minkowski space. This permits the eventual transformation of the Dirac equation for a spinor field as formulated by Fock for Riemann space from the form given by Cartan to forms derived by Dirac in terms of killing vector fields on the hyperboloid $r = r_0$. Further simplifications derived by Dirac make it possible to subject all four components of the spinor field to a single second-order equation, yielding great simplifications. The transformed Cartan expression can also be written as a mass-free Dirac equation in 5-dimensional Poincaré-Minkowski space.

The third section considers the effect on the scalar product of the original non-quantized spinor fields of the transformation from the orthogonal basis in the de Sitter space f^a to the basis dx^a by orthogonal transforms. The

2/3

USSR

fourth section is a derivation of the current vector and the energy-impulse tensor with the new basis. The fifth and final section is related to operators in the space of solutions of the Dirac equation. There is a whole group of very interesting operators in the de Sitter case. Various commutation relationships among these operators are derived.

3/3

SHAVRIN, O. I., BAKHMATOV, A. L., IL'INA, A. N., KUDRYAVTSEV, M. M., and
DENISYUK, T. P., Izhevsk Mechanical Institute

"Thermomechanical Treatment of Type 40KHNMA and 30KHGSA Steel Made by Various
Methods"

Abstract: This work studies the influence of high temperature thermomechan-
ical working on the properties of 40KHNMA and 30KHGSA steels produced by
various methods of open melting with subsequent electric-slag remelting.
The effectiveness of the thermomechanical working was estimated from the
results of tensile and impact testing of standard specimens. It was found
that the strength and ductility limits of the steel changes as they change
following ordinary heat treatment. The relative elongation, reduction in area
and impact toughness increased slightly after thermomechanical working, as
after ordinary heat treatment. The plastic properties are somewhat lower
than after ordinary heat treatment. Metallographic studies of the influence
of thermomechanical working on the austenite grain size of 40KHNMA steel
showed that the process makes the austenitic grains slightly smaller than does
ordinary heat treatment.
1/1
                                    - 70 -

Thermomechanical Treatment

USSR

UDC 621.771.073.8.9

KREKNIN, L.T., SHAVRIN, O.I., TREFILOV, V.G., DMITROV, L.N., BRYNDIN, V.V.,
and TOKAREV, P.S., Izhevsk Metallurgical Plant

"Thermomechanical Treatment of Cold Rolling Rollers"

Abstract: A method of high-temperature thermomechanical treatment of cold
rolling rollers 20-40 mm in diameter is described. The HRC hardness obtained
is not less than 60-62 and the depth of the hardened layer is about 4-5 mm.
By varying process parameters, any desired layer depth can be obtained. A
comparison of microstructure of samples after thermomechanical treatment at a
depth of 5 mm and after conventional high-frequency hardening at 1.5-3 mm
shows that in the latter case the martensite needles are smaller.

1/1

TITLE--MECHANICAL PROPERTIES, OF CARBON STEEL, AFTER HIGH TEMPERATURE
   THERMOMECHANICAL TREATMENT, AND THE AUSTENITE GRAIN SIZE -U-
AUTHOR-(03)-SHAVRIN, O.I., MOKRUSHIN, YU.A., ILINA, A.N.

COUNTRY OF INFO--USSR

SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV. 1970, (3), 57-58

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MECHANICAL PROPERTY, CARBON STEEL, THERMOMECHANICAL TREATMENT,
   BORON CONTAINING ALLOY, BORON INTERNSIFIED STEEL, METAL HEAT TREATMENT,
   TOUGHNESS, GRAIN SIZE, AUSTENITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0928   STEP NO--UR/0129/70/000/003/0057/0058

CIRC ACCESSION NO--AP0133017
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0133017
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION BETWEEN THE
  MECHANICAL PROPERTIES OF C STEEL CONTG. TRACES OF B, THE FORM OF HEAT
  TREATMENT APPLIED TO THE STEEL (E.G. HIGH TEMP. THERMOMECHANICAL
  TREATMENT COMPRISING 30PERCENT DEFORMATION AT 900DEGREESC), AND THE
  AUSTENITE GRAIN SIZE WAS STUDIED. IN GENERAL THE PRECISE FORM OF
  THERMOMECHANICAL TREATMENT HAD NO MARKED EFFECT ON THE UTS AND YS,
  ALTHOUGH IT APPRECIABLY INCREASED THE TOUGHNESS AND DUCTILITY OF THE
  STEEL, PRESUMABLY AS A RESULT OF THE CORRESPONDING FALL IN AUSTENITE
  GRAIN SIZE.

                         UNCLASSIFIED

USSR

KOKOSHKIN,V. P., SHAVRIN, S. F., SERGEYEV, M. V., FURSOVA, G. V.

"A Compander Echo Suppressor"

Translation: This Author's Certificate introduces a compander echo sup-
pressor which contains a rectifier amplifier, and an expander and compressor
with controlled two-terminal pair network. As a distinguishing feature of
the patent, the operational reliability of the compander echo suppressor
is improved with simultaneous simplification by connecting the input of
the expander through the rectifier amplifier to the neutral points of the
controlled two-terminal pair network of the compressor. The circuit of the
controlled compressor is also connected to the neutral points of the same
two-terminal pair network.

1/1

USSR   UDC: 771.534.11

SHAVROVA, Z. I.

"Aging of Black and White Negative Films After Very Long Storage"

Abstract: It was previously reported that the films produced during
the first postwar decade had the following aging characteristics: sensitivity
decreased rapidly during the time A of about a year, remained constant
between the time A and B, decreased to the minimum allowable value
between the time B and C. The aging characteristics of the more recent
films were investigated. It was found that the recent films have the same
general aging characteristics but are more durable. The durability
decreases with the increase of chemical sensitizing. The times A, B, C
and the corresponding sensitivities are tabulated for four contemporary
black and white films.

1/1

1/2   017   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--CHEMISTRY UNSATURATED ETHERS. XXVII. SYNTHESIS OF
    2,6,6,TRIALKOXYPYRAN DERIVATIVES -U-
AUTHOR-(02)-SHAVRYGINA, O.A., MAKIN, S.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM. ZH. 1970, 4(3), 24-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC OXYGEN COMPOUND, BROMINATED ORGANIC COMPOUND,
    INFLUENZA VIRUS, SELECTIVE DRUG EFFECT, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0362   STEP NO--UR/0450/70/004/003/0024/0025

CIRC ACCESSION NO--AP0121050
                        UNCLASSIFIED

2/2   017
CIRC ACCESSION NO--AP0121050
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.
2,6,6,TRIMETHOXY,3,BROMOTETRAHYDROPRAN (I), N PRIME20 SUBD 1.4648, B.
89-90DEGREES-1.5 MM, WAS PREPD. IN 61PERCENT YIELD BY ADDING AT
NEGATIVE10DEGREES 17.8 G N BROMOSUCCINIMIDE TO A SOLN. OF 14.4 G
6,6,DIMETHOXY,DELTA PRIME2,DIHYDROPYRAN IN 14.2 ML ANHYD. MEOH, AND
STIRRING 2 HR AT 20DEGREES., 2,6,6,TRIMETHOXY,DELTA PRIME3,DIHYDROPYRAN
(II), N PRIME20 SUBD 1.4450, B. 62-5DEGREES-1.5 MM, WAS PREPD. IN
50PERCENT YIELD BY REFLUXING A MIXT. OF 13.8 G I AND MEONA PREPD. FROM
1.41 G NA AND 10.5 ML MEOH. II SHOWED IN VITRO ACTIVITY AGAINST
INFLUENZA VIRUS TYPE A PR-8 STRAIN.   FACILITY: MOSK. INST.
TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

Acc. Nr: Abstracting Service: Ref. Code:
AP0048823   CHEMICAL ABST.   TLR 0366

90232r New method for synthesizing cyanines based on glutaconaldehyde acetals. Makin, S. M.; Monich, N. V.; Shavrygina, O. A.; Berezhnaya, M. I.; Kheifets, S. A. (Mosk. Inst. Tonkoi Khim. Tekhnol. im. Lomonosova, Moscow, USSR). Zh. Org. Khim. 1970, 6(1), 107-12 (Russ). The condensation of 2,6-(RO-substituted)-Δ^3-dihydropyrans with ROH (R is Me or Et in both cases) gave $(RO)_2CHCH_2CH:CHCH(OR)_2$ (I). The condensation of I with $R^1CH:CHOR$ in the presence of $ZnCl_2$ gave $(RO)_2CHCH_2CH:CHCH(OR)CHR^1CH(OR)_2$ (II). Similarly, I reacted with $CHR^1:CR^2CR^3:CHOR$ to give $(RO)_2CHCH_2CH:CHCH(OR)CHR^1CR^2:CR^3CH(OR)_2$ (III). The hydrolysis of II with HCl in the presence of amines gave the following $XCH:CHCH:CHCH:CR^1CH:X^+Cl^-$ (R^1 and X given): H, PhNH; H, 1,2,3,4-tetrahydroquinolino; Me, PhNH; H, PhNMe. Similarly III with HCl gave $XCH:CHCH:CHCH:CR^1CR^2:CR^3CH:X^+Cl^-$ (R^1, R^2, R^3, and X given): H, H, H, PhNH; H, H, H, 1,2,3,4-tetrahydroquinolino; H, H, H, PhNMe; H, H, H, p-ClC$_6$H$_4$NH; H, H, H, m-F$_3$CC$_6$H$_4$NH; H, H, H, p-MeC$_6$H$_4$NH; H, H, H, PhNEt; H, H, Me, PhNH; Me, H, H, 1,2,3,4-tetrahydroquinolino; H, H, Me, 1,2,3,4-tetrahydroquinolino.   CPJR

REEL/FRAME
19800586

USSR

UDC: 539.385

SHAVSHUKOVA, G. N.

"Investigation of the Fatigue Strength of High-Strength Steel Grades 15G2SF and 15KhG2SFMR"

Sb. tr. Mosk. inzh.-stroit. in-t (Collected Works of Moscow Construction Engineering Institute), 1970, No 85, pp 12-18 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4V1060)

Translation: The paper presents the results of a fatigue test of flat specimens of high-strength steel grades 15G2SF and 15KhG2SFMR. Statistical processing of the experimental data yielded equations of the fatigue line and the values of fatigue limits. The method of accelerated fatigue tests was also used. For 15G2SF steel at a coefficient of asymmetry $\rho = 0.14$, the bounding fatigue limit was 90 percent of the yield stress, with a corresponding figure of 60 percent for 15KhG2SFMR steel. Author's abstract.

1/1

Corrosion

USSR

UDC: 620.194

SUVOROVA, G. S., and SHAVYRIN, V. N., Scientific Research Institute of Technology and Organization of Production, Moscow

"Effect of Preliminary Corrosion on Fatigue Strength of Joints of Aluminum Alloys"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, No 2, 1971, pp 106-107

Abstract: The authors studied the effect of preliminary corrosion on the fatigue limit of riveted, welded, and glue-welded joints with various anti-corrosion coatings. The specimens were made of clad D16AT alloy 1.5 mm thick. The static short-term strength of welded and riveted joints before and after corrosion was approximately the same. Glue-welded joints showed a decrease in thickness of 15-18% and a tendency to separate at the joint rather than in the base metal as is usual for uncorroded joints. The fatigue limit of welded joints was decreased by up to 30%. Thus, preliminary corrosion affects the fatigue strength of this metal significantly.

1/1

1/2   026   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--ON THE INCREASE OF THE ENDURANCE OF THE WELDED JOINTS IN THE SHEET
    STRUCTURES OF ALUMINUM ALLOYS -U-
AUTHOR--SHAVYRIN, V.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, 70, PP 6-8

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WELD JOINT, BIBLIOGRAPHY, ALUMINUM ALLOY, SHEET METAL, CYCLIC
    ENDURANCE LIMIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/2040   STEP NO--UR/0135/70/000/001/0006/0008

CIRC ACCESSION NO--AP0118994
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0118994
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTS WERE PERFORMED WHICH
SHOWED THAT THE ENDURANCE OF THE WELDED JOINTS MARKEDLY INCREASES UPON
APPLICATION TO THEIR SURFACE OF AN ADHESIVE COATING.

UNCLASSIFIED

USSR

GAMIN, YU. K., Engineer, and SHAVYRIN. V. N., Candidate of Technical Sciences
Scientific Research Institute of Technology and Organization of Production
of the Aviation Industry

"Single-Side Spot Welding of Small-Thickness Parts"

Abstract: The authors investigated the features of weld-zone formation in
relation to welding parameter changes on steel plates of alloy SN3, SN4,
VZh-98, and EP99 with thickness of 0.03 to 0.1 mm. Welding was done on an
experimental unit with electrode heads having controlled pressure up to 1.5
kgf. Positive results were obtained for determining weld joint quality in
the single-sided, double-spot welding of small-thickness parts of heat-
resistant steels. The data obtained make it possible to determine welding
transformer parameters and to select the cross sections of the current-
conducting elements of the welding consoles and other magnitudes required
for designing multielectrode devices for using this welding method. Four
figures, one table, two bibliographic references.

1/1

USSR

UDC 620.193

SHAVYRIN, V. N., and SUVOROVA, G. S.

"Effect of a Polymeric Coating on the Corrosion Fatigue Strength of Welded Materials of Aluminum Alloys"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 8, No 2, 1972, pp 24-27

Abstract: Samples of welded material for the study of corrosion fatigue strength were prepared from clad alloys DI6AT and alloy I20 with a thickness of 1.5 mm. Testing was carried out on a resonance machine with a frequency of 2500 cycle/mm with a constant sign asymmetric cyclic tension. The test base was 10^7 cycles. The samples were placed in a plastic vessel containing a 3% solution of NaCl with 0.1% H_2O_2. UK-9 cold setting epoxy adhesive was used as the polymeric coating. The sample surface was cleaned with a metal brush and degreased before depositing the adhesive. Samples butt welded by argon arc welding had an adhesive layer. 0.12-0.2 mm thick and 15-18 mm wide, with over-lapping reinforced seams. The overlapping material was welded along the layer of moist adhesive with a low-frequency welding machine. The greatest strength was found with adhesive welded materials. Coatings which create a noticeable residual stress of contraction on the metal, as a rule, are brittle and break down easily. However, the use of elasticity materials with the adhesive before

1/2

USSR

SHAVYRIN, V. N. and SUVOROVA, G. S., Fiziko-Khimicheskaya Mekhanika Materialov,
Vol 8, No 2, 1972, pp 24-27

solidification produces a greater durability of the weld. This use of a poly-
meric coating is advantageous since the coating can be deposited on any size
and shape surface, does not require special instrumentation, and can be renewed.

2/2

USSR

UDC 547.759.4.07

SHAW, R. A., and MUKHENEV, E. T., Department of Chemistry, J. Lerkman College, London University, and the Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, USSR Academy of Sciences, Kazan

"A New Method for the Synthesis of 1,1,3-Triphenyl-1H-Isoindole"

Abstract: 1,1,3-triphenyl-1H-isoindole (I) was obtained by reacting diphenyl ketone with 2,2,4,4,6,6,8,8-octakis-(2,2,2-trifluorethoxy)-1,3,5,7,2,4,6,8-tetraazatetraphosphocine. Identification of I was based on chemical analysis, melting temperature, and IR, UV, and ESR spectra.

1/1

- 15 -